

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

AD-A219 166

ARJ 5 1990

AYA 2-89

ER(S)

D.CS

1b. RESTRICTIVE MARKINGS

None

3. DISTRIBUTION / AVAILABILITY OF REPORT

Unlimited

5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION

ARDEC

6b. OFFICE SYMBOL
(If applicable)

SMCAR-ESK

7a. NAME OF MONITORING ORGANIZATION

6c. ADDRESS (City, State, and ZIP Code)

Rock Island, IL 61299-7300

7b. ADDRESS (City, State, and ZIP Code)

8a. NAME OF FUNDING / SPONSORING
ORGANIZATION8b. OFFICE SYMBOL
(If applicable)

9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)

10. SOURCE OF FUNDING NUMBERS

PROGRAM
ELEMENT NO.PROJECT
NO.TASK
NO.WORK UNIT
ACCESSION NO.

11. TITLE (Include Security Classification)

Performance Oriented Packaging Testing of 4C1 POP Container of Wood Box

12. PERSONAL AUTHOR(S)

Mark Rehmstedt

13a. TYPE OF REPORT

Final

13b. TIME COVERED

FROM 89/11/8 TO 89/11/15

14. DATE OF REPORT (Year, Month, Day)

89/11/15

15. PAGE COUNT

3

16. SUPPLEMENTARY NOTATION

17. COSATI CODES

FIELD

GROUP

SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

Wood Box

Hazardous Materials

MIL-B-2427

PPP-B-621

Performance Oriented Packaging, (KR)

U.N. Recommendations on the Transport

of Dangerous Goods

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The U.S. Army Armament Research, Development and Engineering Center (ARDEC), was requested to verify that a MIL-B-2427 and PPP-B-621 wood box meets or exceeds the requirements of the United Nations, "Recommendation on the Transport of Dangerous Goods." The box was tested at the U.S. Army Defense Ammunition Center and School (USADACS) by performing a drop test and stacking test. There were five drops performed at a height of 48 inches; flat on top, flat on bottom, on a long side, a short side, and a corner. The stacking test was to simulate a load on the bottom box of a stacking height of 16 feet. The container met the requirements of a "4C1" container of the Performance Oriented Packaging requirement.

Keywords:

90 03 01 242

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT

☒ UNCLASSIFIED/UNLIMITED☐ SAME AS RPT.☐ DTIC USERS

21. ABSTRACT SECURITY CLASSIFICATION

Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL

David A. Piskorik, Chief (Packaging Office)

22b. TELEPHONE (Include Area Code)

AV 793-6164

22c. OFFICE SYMBOL

SMCAR-ESK

Report Number: DODPOPHM/AYA/TR89002

Title: Performance Oriented Packaging Test of 4Cl Wood Box

Container: Box, Ammunition Packing: Wood, Nailed

UN Code: 4Cl

Specification Number: MIL-B-2427, Type 1, Class 1

Dimensions: O.D. Inches 43.75 x 14.25 x 8.75

Closure: Metal Banding (3)

Gross Weight: 146 lbs.

Contents: Inert 105mm ammunition

Test Performed: Packaging Group II

1. Drop Tests - 1.2 meters

Bottom, Top, Long side, Short side, Corner (5 drops).

Contents of inner receptacles must be retained to pass.

2. Stacking Test

Compression top load equivalent to the weight of a 3 meter stack of like product must remain stable after 24 hrs. to pass.

Test Results:

1. Drop Test - Some minor separation of the nailed boards. Contents undamaged.
2. Stacking Test - No damage after 24 hrs. of top load of 3,010 lbs.
3. Passed (UN criteria).

Accession For	
NTIS - GRAFI	✓
DTIC TAB	✓
Unannounced	✓
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Container: Box, Wood, Nailed and Lock - Corners
UN Code: 4C1
Specification Number: PPP-B-621, Style 4 and 4 1/2
Dimensions: I.D. Inches 12.81 x 12.10 x 7.56
Closure: Nailed and Metal Strapped
Gross Weight: 98.7 lbs.
Contents: Lead Shot

Test Performed: Packaging Group II

1. Drop Tests - 1.2 meters

Bottom, Top, Long side, Short side, Corner (5 drops).

Contents of inner receptacles must be retained to pass.

2. Stacking Test

Compression top load equivalent to the weight of a 3 meter stack of like product must remain stable after 24 hrs. to pass.

Test Results:

1. Drop Test - Some minor splits occurred along nailing lines. Minor corner crushing observed on wood box. Contents undamaged.
2. Stacking Test - No damage after 24 hrs. of top load of 1,450 lbs.
3. Passed (UN criteria).